

## Patent Claims

1. A method for automatically allocating an IP address when a new station is connected in a network,  
5 characterized in that the new station in the network allocates itself its IP address autonomously by virtue of the network being monitored for at least one already allocated valid IP address in a first  
10 phase (1), and, in a second phase (2), an
- (i) IP address which is different than this already allocated IP number being  
15 generated automatically, with generation involving the address being altered only slightly, preferably by altering just the last byte, while the first three bytes are adopted from the already  
20 allocated IP address,
  - (ii) the availability of this generated IP address being checked by means of a request in the network,
- 25 and, if this generated IP address is available, the new station allocating it to itself or, if it is not available, the generation of a new IP address (i) or the checking thereof (ii) being repeated.  
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2. The method as claimed in claim 1, characterized in that within the first phase (1) during monitoring, IP addresses at 0.0.0.0 or 255.255.255.255 are ignored and IP addresses in the range from  
35 169.254.1.0 to 169.254.254.255 are logged, and in that the second phase (2) is initiated when the first different and hence valid IP address in the

network has been monitored.

3. The method as claimed in one of the preceding claims, characterized in that the automatically  
5 generated IP address either by virtue of the last byte being incremented or decremented by a fixed value, such as 1, by virtue of the last byte being filled with a random number, by virtue of the last byte being derived algorithmically from a system  
10 constant or by virtue of it being assigned a fixed value.
4. The method as claimed in one of the preceding claims, characterized in that the availability of  
15 the generated IP address is obtained using an address resolution request (address resolution protocol request, ARP request) with the generated IP address, and by virtue of the generated IP address being assumed to be available if there is  
20 no response or being assumed to be unavailable if a response is received.
5. The method as claimed in one of the preceding claims, characterized in that a check is first  
25 carried out to determine whether the network contains a server for automatically, possibly dynamically, allocating IP addresses, and in that if there is such a server the new station assigns itself the IP address allocated by this server.  
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6. The method as claimed in one of the preceding claims, characterized in that if no valid IP  
35 address is received in the first phase (1) within a characteristic time of, typically, in the range of three minutes then automatic allocation is performed using Auto IP, possibly taking into account IP addresses in the range from 169.254.0.1

to 169.254.255.254 which have been logged in line with claim 2 and are thus already in use.

- 5 7. The method as claimed in one of the preceding claims, characterized in that the new station is a station with an audio output, and in that the finally allocated IP address is output via this audio output.
- 10 8. The method as claimed in one of the preceding claims, characterized in that the assignment of the IP address is followed by automatic determination of broadcast address and netmask, the procedure particularly preferably being that  
15 the destination address of a monitored broadcast block is adopted as broadcast address.
- 20 9. The method as claimed in claim 8, characterized in that the broadcast address is determined by using the first three bytes of the allocated valid IP address from the network to check all possible broadcast addresses from the bottom upward with a query about protocols, such as ping, and the valid broadcast address taken being the first IP address  
25 to which all stations in the network which have a lower IP address respond, and by then stipulating the netmask such that all bits above the broadcast component are set to 1 and all bits of the broadcast component are set to 0.  
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- 35 10. The method as claimed in one of the preceding claims, characterized in that after the IP address has been allocated, periodic requests are used to check the network to determine whether the IP address of the new station is still unique, and in that if a further station with the same IP address is found then a free and valid IP address is

sought and allocated by re-entering the second phase (2).

- 5 11. The method as claimed in one of the preceding claims, characterized in that at least one network station already integrated in the network executes a program which sends data packets in the form of markers in order to indicate to the new station what network it needs to integrate itself in.
- 10 12. The method as claimed in claim 11, characterized in that the markers are data packets of specific and identifiable block length and/or at specific and identifiable time intervals, the network particularly preferably being a cableless network.
- 15 13. The method as claimed in either of claims 11 and 12, characterized in that the markers are used to transfer network parameters to the new station directly or indirectly, preferably using coding, in which case the new station particularly preferably has the security and reliability of the data transmission verified using appropriate control mechanisms, and where the new station, following registration thereof in the network, also preferably acknowledges its successful registration to the network station which is already integrated in the network and then the program on the network station which is already integrated in the network is automatically stopped.
- 20 25 30 35 14. The method as claimed in one of claims 11-13, characterized in that the markers are sent on the basis of an identification number which is specific to the new station, such as on the basis of its MAC address.

15. The method as claimed in one of claims 11-14,  
characterized in that the markers are encrypted  
information, with the key being particularly  
5 preferably derived from a specific identification  
number, such as the MAC address of the new  
station.
16. A network station for connection to a network  
10 comprising at least one communication interface  
for interchanging data with the network, at least  
one storage medium and a processor (CPU) which is  
connected to this interference and to the storage  
medium, the storage medium containing programs for  
15 execution by the processor,  
characterized in that  
the storage medium contains a program for carrying  
out the method as claimed in one of claims 1 to  
15, and in that the network station automatically  
20 starts this program after connection to a network,  
provided that it has not yet been activated, and  
where the network station particularly preferably  
has an audio output and can output an allocated IP  
number via this audio output.
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17. A computer program for carrying out a method as  
claimed in one of claims 1 to 15.